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**SYSTEM FOR GLUING BAGS COMPRISING MULTIPLE SHEETS****DESCRIPTION**

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**OBJECT OF THE INVENTION**

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The present invention refers to a system which permits an improvement in the glueing of paper bags and sacks composed of several layers or sheets, and especially, for glueing the bottoms of the sacks and bags.

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The object of the invention is a glue applicator plate, used for the glueing of the bottoms of the bags, and specifically, a raised or embossed of said gluer which avoids the glue coming off at high speeds.

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Also, the object of the invention is the configuration of the glueing points utilized for the application of the glueing points which maintains the sheets united during the process of forming the bottom.

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With the proposed system one achieves a better distribution of the glue and less spattering and, consequently, a greater consumption of the glue and a greater speed of drying which means an increase in production.

**BACKGROUND OF THE INVENTION**

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The paper bags or sacks composed of various sheets or layers are formed starting from rolls of paper, and sometimes from plastic materials, in two principal stages, a first stage of formation of a tubular surface open at its extremes and a

stage of formation of the bottoms, therefore, the said sack or bag.

For this, in the first place, points of glue are applied which are situated on the edges of the sheets. This glueing is necessary to maintain the sheets united which constitute the bag or sack, during the operations of folding and glueing of the bottoms.

After, glueing is applied on the longitudinal edges of the sheets in order to make a closed tubular surface.

Finally, the formation of the bottoms of the bags is made and they are obtained by means of the folding and glueing of the clearly defined flaps on the extremes of the tubular surface previously obtained.

For the glueing of the bottoms, first a folding of the edges of the tube obtained previously is produced, to define some flaps, on one of which the corresponding glue is applied. After, a new fold is done again on the flaps in such a way that they remain superimposed and stuck to each other. It is usual to apply on the flaps already stuck a strip of paper, which is also glued, and which acts as a strengthener.

In order to produce the folds necessary for the shaping of the bottom, suction pads are used which lift up the extremes of the tube, resulting indispensable that the distinct sheets which constitute the bag are united among themselves by means of the points of glueing. These points of glueing are the ones mentioned at first, since the process of the shaping of the bags is applied initially.

Well then, for the glueing of the bottoms transfer rollers are used which conducts the adhesive to a roller applicator

which has on its surface a plate or special band of rubber or a similar rough surface, with small cells in which the glue is deposited which is transferred to the flaps of the paper sheets for their closure, shaping this way the bottoms of the bags.

When large quantities of the flaps for the bags are tried to be glued, you have to increase the speed of rotation of the roller applicator but, due to the morphology of the surface of the plate, some of the glue comes off the surface as a consequence of that increase in speed.

Also, for the obtaining of the glueing points which keep the sheets of paper united, the glueing machines have roller applicators which have some ruler guides on which are set some glue points which apply the glue in the front and back openings of the different layers and sheets.

The glueing points are of rubber, plastic or metal and generally present a circular, elliptical or rectangular configuration.

These glueing points can either form part of the ruler guide or constitute independent pieces which are connected to the ruler guides by a support equipped with a lower shaft which is threaded around the said power strip and a upper shaft which is threaded around the glue point.

Well then, the configurations described present the inconvenience that the glue accumulates on the walls of the glue point and the glue not transferred comes off, during the turning of the roller, producing unwanted spattering. On other occasions, the glue dries around the glueing points, gradually increasing the transfer surface,

producing an unnecessary expense and increasing the humidity in the bag.

#### DESCRIPTION OF THE INVENTION

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The system of the glueing object of the invention, resolves the problem mentioned of the bottoms of the bags, in that it refers to the flaps and the strenthening strips on the bottoms, as well as the the glue between the different sheets  
10 of each bag which permits to maintain them united during the anchoring or shaping of the bottoms.

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The plate for the glueing of the flaps of the paper bags or sacks which constitutes the object of the invention is of plastic or a similar material and shows a special embossment on its surface which permits it to resolve satisfactorily the current problems.

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Specifically, the embossment of the surface of the plate is formed by a series of parallel rows which conform to a series of crests, among which are defined the corresponding valleys or grooves, in a way that the glue is distributed impreganted only on the crests, avoiding its coming off at high speeds from the rotation of the roller. The rows of crests are found  
25 arranged with a longitudinal orientation in the direction of the rotation of the roller applicator.

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In this way, the glue is applied forming a series of parallel lines, whose distance comes determined by the separation among the crests and which can vary according to the type of glue used and the required necessities. The cleaner the glue the greater its grip in dampness, and the better results obtained.

This morphology permits a better distribution and saving of glue and much less spattering, by which the drying is produced faster and therefore productivity can be increased and reduce the time of delivery of the bags obtained.

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The crests can present different configurations, like triangular profiles, corrugated, square, and slender. Special configurations have also been planned, like for example, parallel rows of pairs of truncated conical protuberances which permit to reduce even more of the glue used. Moreover, this configuration permits to retain the glue on the plate at the machine stops, in such a way that on restarting the motion, the glueing is produced on the bottoms without interruptions or on areas lacking in glue.

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As soon as the glue between the sheets that constitute the bag, some glueing points are used whose design facilitates the impregnation of the glue and its application in the shaping of the bags avoiding the accumulation of the same.

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Specifically, when the glueing point is metallic an essentially triangular configuration is anticipated, and the glueing point remaining arranged on the corresponding interlinear spaces oriented in such a way that one of the vertices of the triangle might remain facing the direction of the glue.

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In accordance with the object of the invention, the glueing point can be with a canal or a longitudinal groove going through the central part to improve the evacuation of the glue.

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When the glueing points are of rubber or plastic a configuration in the circular sector is anticipated, the

vertex remaining facing in the direction of the glue. This circular sector can also incorporate a central groove similar to the one described previously.

5 The glueing points of rubber or plastic can also present a configuration of a circular segment, of reduced thickness, which remains facing the glue through its curved edge which presents less resistance.

## 10 **DESCRIPTION OF THE DRAWINGS**

To complement the description that is being done and with the object of helping a better understanding of the characteristics of the invention, in accordance with the practical example of the preferred embodiment of the same, a set of drawings comes as an integral part of the said description wherein with illustrative and non limiting character, represents the following:

20 Figure 1.- Shows some of the stages of the shaping of a sack or bag of multiple sheets.

25 Figure 2.- Shows a series of sections, corresponding to diverse configurations of the surface of the plate for the glueing of the bottoms of the bags.

Figure 3.- Shows a perspective of a plate composed of pairs of rows of truncated conical protuberances.

30 Figure 4.- Shows a plan view of a power ruler guide in which are arranged the glueing points of the multiple sheets which constitutes the bag, some glueing points of triangular configuration having been represented.

Figure 5.- Shows a perspective view of a possible geometric configuration of the glueing points of the multiple sheets which make up the bag, and specifically, a glueing point of triangular configuration.

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Figure 6.- Shows a perspective view of a possible geometric configuration of the glueing point of the multiple sheets which make up the bag, and specifically, of a glueing point in a circular sector.

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Figure 7.- Shows a perspective view of a possible geometric configuration of the glueing point of the multiple sheets which make up the bag and, specifically, of a glueing point of a circular sector of reduced thickness.

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#### **PREFERRED EMBODIMENT OF THE INVENTION**

In figure 1 a bag of multiple sheets is represented in distinctive phases of its shaping and, especially, the following:

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a.- A sheet of paper (1), after the glue is applied on its extreme edges. On this sheet is placed another sheet of paper, maintaining both united by means of said points of glue (2), in order to permit the posterior glueing of the bottoms. This glue is applied by means of the glueing points (3) which are the object of the invention.

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b.- A bag (4), once applied a line of glue longitudinally on both sheets, getting an open tubular configuration by their extremes.

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c.- A bag (4), once configured one of the flaps(5) of the bottom and the corresponding glue applied (6) on the same. This glue is applied by means of a plate (7) object of the invention.



d.- A bag (4), once the two flaps (5)(5') are glued together between themselves, constituting the bottom, and on which is going to be glued a reinforcement strip (13) on which a layer of glue is applied (6') by means of the plate (7) object of the invention.

The glueing points (3), represented in the phase of the figure 1 permit the glueing of the multiple sheets (1) that constitute the bag (4) to each other and, just like it is represented in figure 4, they are the types of those that are mounted on a ruler guide (8) which at the same time are arranged on a roller applicator, the glueing points (3) being able to mounted on the ruler guide (8) in an interchangeable way, by means of the corresponding threaded support.

The glueing points (3) object of the invention can present different configurations depending on the material they are constituted of. This way, for example, just like it is represented in figure 5, the metallic glueing points present a geometry essentially triangular and which go arranged on the ruler guide (8) in such a way that one of its vertices remains facing the direction of the glue, as can be observed in figure 5.

The glueing points of rubber or plastic are constituted in the form of circular sector (3) with its vertex facing in the direction of the glue, as represented in figure 6.

It has also been anticipated that the glueing points of rubber or plastic might present a geometry in circular segment of reduced thickness (3'''), the circular segment remaining in vertical position on the ruler guide (8) by means of its rectangular base and in a way which might attack



the glue with its less longer side, of approximately 2 mm. This glueing point (3''') is represented in figure 7.

Also, and with the object of facilitating the evacuation of the spare glue, it is anticipated that the glueing points (3'), (3''), (3''') present a longitudinal groove (5), just like it can be observed in figures 5, 6 and 7.

In the figures 2 and 3 the corresponding longitudinal sections to diverse configurations of the plate used for the glueing of the bottoms are represented, represented in the phases c and d of the figure 1.

The plate (7) object of the invention consists of a piece of plastic material or something similar which comprises a series of parallel rows (10) which define respective crests and valleys or grooves, so that the adhesive impregnates only the crests and the application of glue on the flap (5) and reinforcement strip (13) is produced forming parallel lines (6). In this way, a saving of glue is obtained which entails a greater speed of drying and an increase in production. The parallel rows (10) are arranged in the direction of the rotation of the glueing roller.

With this type of plate, the glue is distributed only on the crests, avoiding its coming off or spattering at high speeds from rotation of the roller, guaranteeing in this way a uniform application of the adhesive on the flap.

The parallel rows can present diverse configurations, just as can be observed in the figure 2, in which are represented rows with a triangular, undulating or square longitudinal section.

In the figure 3 another embodiment of the plate (7) is represented which comprises a series of rows (11), composed of pairs of truncated conical protuberances (12) which reduce even more the consumption of glue and moreover retains the glue in the plate (7) when the machine is stopped.

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